

REMARKS

Claim 17 has been amended so as to improve its form and for greater clarity.

Reconsideration is respectfully requested, for the rejection of the claims as anticipated by or unpatentable over BINTNER 4,128,206.

It is the assertion of the Official Action that BINTNER discloses a spray nozzle for agriculture spray such as herbicides, comprising:

- body 68 define an axial cavity

The axial cavity of the body 68 is, as shown by Figures 1 and 2, that which is inwardly threaded in 72 then outwardly threaded in 70.

Claim 17 refers to an inlet orifice at one of the ends of the axial cavity: the inlet orifice in BINTNER should thus be the entrance of the inwardly threaded part of body 68; however, the Official Action does not refer to that entrance but to the cutouts 58 provided in another part, i.e. in strainer 64 which is housed in body 68.

Now, if it is considered that cutouts 58 correspond to the inlet orifice referred to in claim 17, it cannot be considered that the body defining the axial cavity, as claimed, corresponds to body 68 in BINTNER but to strainer 64 which has indeed also an axial cavity.

- a spray orifice 24

Claim 17 refers to a spray orifice at the other end of the axial cavity.

Now, if the axial cavity to be considered in BINTNER is that of body 68, the spray orifice 24 of BINTNER is not at the other end of this axial cavity since the other end of said cavity is shut: first, centrally shut by cap 56, which leaves open only an annular peripheral portion of said cavity, than peripherally shut by "the forward end 82 of the nozzle body".

On the other hand, if one considers that the axial cavity which actually corresponds to that of claim 17, is the axial cavity of strainer 64, said orifice 58 is not "at one end" of the cavity, i.e. is not an axial orifice as inlet orifice 34 (Figure 1 of the present application) is. The fact that the inlet orifice is an axial orifice has been clarified in amended claim 17. In BINTNER, cutouts 58 are peripheral cutouts and the difference has obviously an effect on the fluid entering in the cavity as shown by the arrows of Figure 2 of BINTNER: the entrance through the two staggered cutouts 58 imparts a helicoidal flow to the fluid before it reaches metering disk 50.

Conversely, in the invention, the fluid is admitted axially in the cavity and is not given a helicoidal flow before reaching calibration disk 33.

- a disk 50 with an axial passage 52

Correct.

- a divergent component 44

In BINTNER, 44 refers to the arcuate cutouts in impingement partition plate 42 (column 5, lines 6-8). Applicants thus assume that the Official Action implies that plate 42, with its cutouts 44, corresponds to the divergent component of claim 17, i.e. to component 19 of Figure 1. However, the effect of part 42, 44 of BINTNER is not that described for component 19. As mentioned on page 16, lines 24-28 of the present application "The liquid then enters the passage 20 in the divergent part, where its energy, which has been axial up until now, is converted in a centrifugal energy owing to the configuration of said passage 20, which force the liquid to take a circular orientation". Conversely, in BINTNER, upstream part 42, 44, i.e. in chamber 84, the liquid does not flow while having an axial energy but is subjected to an extreme turbulence due to impingement on part 42, 44 (column 4, last line to column 5, line 4). Then, the liquid flows by way of the cutouts 44 while still extremely turbulent. The purpose of part 42, 44 is thus to create, upstream of said part, an extreme turbulence and not to create a centrifugal (rotational) flow downstream said part.

Downstream of part 42, 44, the turbulence is a residual, but still strong, turbulence which is not to be confused with a clean rotational flow.

Part 42, 44 is thus not comparable to the claimed divergent component.

- a convergent component 10 with an axial passage 18

Component 10 in BINTNER is clearly the part in which the nozzle outlet orifice is provided. It includes an axial passage 18 but this passage is spheroidal-ended so that it defines a chamber 86 (column 4, lines 60-62) in which the liquid is still extremely turbulent (column 5, lines 7-10), which chamber 86 is provided with an elliptical discharge orifice 24 to form a flat fan-shaped spray. In other words, BINTNER discloses a "slit nozzle" which operates on the principle of impaction as referred to on page 3, lines 28-35 of the present application.

Conversely, in the present invention, the axial passage 10 in the convergent component 16 does not open through a discharge orifice forming a flat fan-shaped spray but rather a cone-shaped spray (page 17, line 2; page 20, lines 6-8). This recitation is added in amended claim 17.

- the disk 50 secured to a plug 30 that is hermetically fitted into the nozzle body 68

In BINTNER, metering disk 50 is immobilized between (a) part 54 which should be considered as that part of BINTNER (not part 68) which corresponds to the nozzle body of the invention and (b), indirectly (i.e. through spacer ring 48 and impingement plate 42) by retainer 30 that the Official Action equates to a plug. Disk 50 is thus not secured to retainer 30: its immobilization involves retainer 30 but one cannot describe the relation between disk 50 and retainer 30 as the Official Action

does. As shown by Figures 1, 2a-2b, and 3a-3b, in the invention, disk 33 is directly fitted in plug 27.

- the divergent component 44 is immobilized in the nozzle body by bearing against a suitable profile region

As previously mentioned, part 42, 44 is not a divergent component but an impingement plate.

Moreover, claim 17 also states, and this is in the characterizing part of said claim, that the divergent part is immobilized in the cavity of the nozzle body

- on the downstream side, by simply bearing on a suitable profiled region of the wall of said cavity,

- on the upstream side, by said plug.

The Official Action equates impingement plate 42, 44 to a divergent component but applicants disagree. But if one would admit that BINTNER's impingement plate 42, 44 is similar to the divergent component of the invention, the above-mentioned feature would not even be taught by BINTNER: (1) impingement plate 42, 44 is not immobilized in the cavity 60 itself, but in an extension of said cavity, and (2) more seriously:

- on the downstream side, impingement plate 42, 44 is immobilized by retainer 30, which, according to the Official Action, corresponds to the plug of the invention as claimed (i.e. which means that the arrangement would be inverted (downstream/upstream) compared to the invention), and

- on the upstream side, impingement plate 42, 44 is immobilized by spacer ring 48, itself immobilized by metering disk 50, itself immobilized by cooperation between the cavity body 54 and the retainer 30. On this side, there is thus not a mere inversion of the arrangement: on the upstream side, impingement plate 42, 44 is not immobilized by simply bearing on a profiled region of the wall of the cavity, i.e. on a profiled region of the wall of part 54 but by a series of cooperating parts.

Thus, BINTNER does not anticipate amended claim 17 nor, for the reasons set forth above, render amended claim 17 obvious.

When reviewing the differences set forth above, it should be borne in mind that the objects of the present invention and BINTNER are quite different from each other: in the present invention, the object is to produce a single cone-shaped spray; whilst in BINTNER, the object is to provide a slit-type nozzle discharging a flat jet. These different objects of BINTNER and the present invention emphasize the importance of the structural differences pointed out above.

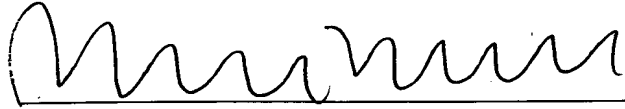
As the claims now in the case clearly bring out these distinctions with ample particularity, it is believed that they are all patentable, and reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional
fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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A handwritten signature in dark ink, appearing to read 'Robert J. Patch', written over a horizontal line.

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